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ADVISORY CIRCULARS
AIRWORTHINESS ADVISORY CIRCULAR

SUBJECT: RETURN TO SERVICE OF AIRCRAFT PARTS RECOVERED FROM AIRCRAFT INVOLVED IN ACCIDENTS/INCIDENTS

A. PARTS RECOVERED FROM AIRCRAFT INVOLVED IN ACCIDENTS

1. INTRODUCTION

- 1.1. This Advisory Circular (AC) reviews the factors involved in establishing the acceptability of aircraft parts (items) recovered from aircraft involved in accidents/incidents, and states the conditions to be met before such items may be returned to service.

NOTE: For the purpose of this AC the term "items" includes all components, parts, engines and accessories.

- 1.2. Other Airworthiness Authorities have evidence that aircraft items, (including highly stressed rotating parts) have been released to service after having been recovered from aircraft involved in accidents/incidents even though the accident circumstances may have caused damage or changed characteristics from those of the type design. Since such items may not manifest any visual evidence of damage, distortion or changed characteristics, a serious airworthiness hazard could result from their use without special precautions being taken as detailed in this Notice.

2. ESTABLISHING ORIGIN OF RECOVERED ITEMS

- 2.1. When an aircraft has been involved in an accident, the title to the salvage may pass from the insured aircraft owner to other persons (e.g. aircraft insurers); this salvage may be offered for sale either complete or as separate aircraft items in an ~~as~~ is, where is+ condition. While some items may be totally unaffected by the accident or incident which caused the aircraft to be declared as salvage, it is essential to obtain clear evidence that this is the case. If such evidence cannot be obtained, the item may not be returned to service.
- 2.2. Before overhaul and reinstallation can be considered, all such items must therefore be subject to airworthiness assessment and inspection in the light of adequate knowledge of the circumstances of the accident, subsequent storage and transport conditions, and with evidence of previous operational history obtained from valid airworthiness records. Confirmation of this assessment in the form of an airworthiness release is essential. All such items must therefore be subjected to an assessment and inspection by a competent person/agency

- 2.3. In particular, if a crash load is sufficient to take any part above its proof strength, residual strains may remain which could reduce the effective strength of the item or otherwise impair its functions. Loads higher than this may of course crack the item, with an even more dangerous potential. Further, a reduction in strength may be caused by virtue of the change of a material's characteristics following overheat from a fire. It is therefore of the utmost importance to establish that the item is neither cracked, distorted or overheated. The degree of distortion may be difficult to assess if the precise original dimensions are not known, in which case there is no option but to reject the item.
- 2.4. Any suggestion of overheating would be cause for a laboratory investigation into significant change of material properties.
- 2.5. The standard procedures appropriate to items removed for overhaul following normal service life may not therefore be sufficient for items from salvaged aircraft. If the information from the manufacturer's manual, or other technical publications, is insufficient to deal with the consideration detailed above then the manufacturer must be consulted for guidance. If the manufacturer provides the additional information, and the item can be shown to meet this, then it may be returned to service.
- 2.6. Where a difficulty exists in classifying the airworthiness significance of the condition of an aircraft item recovered after an accident/incident, the question should be referred to the BDCA Airworthiness Unit for advice. The BDCA will require full details of the circumstances of the accident/incident before a response is made to the enquiry.

3. INFORMATION REQUIRED FROM AVIATION INSURERS:

Aviation insurers and other persons who obtain title to salvage parts may supply to salvage purchasers the details of the accident/incident leading to aircraft or aircraft item, being declared as salvage. It is also common practice for aviation insurer to pass over the airworthiness records to the salvage purchaser. Whilst such information and records are an essential part of the assessment, where return to service is considered, they are not a guarantee that the item is acceptable for re-installation. No operator should use any item/equipment of the aircraft, which has been involved in an accident/incident without observing the above detailed procedures and the permission of the BDCA.

4. DISPOSAL OF SCRAPPED PARTS

- 4.1. Those responsible for the disposal of scrapped aircraft parts and materials should consider the possibility of such parts and materials being misrepresented and sold as serviceable at a later date. Caution should be exercised to ensure that the following types of parts and materials are disposed of in a controlled manner that does not allow them to be returned to service:
 - a) parts with non-repairable defects, whether visible or not to the naked eye;
 - b) parts that are not within the specifications set forth by the approved design, and cannot be brought into conformity with applicable specifications;
 - c) parts and materials for which further processing or rework cannot make them eligible for certification under an approved system;
 - d) parts subjected to unacceptable modifications or rework that is irreversible;
 - e) life-limited parts that have reached or exceeded their life limits, or have permanently missing or incomplete records;
 - f) parts that cannot be returned to an airworthy condition due to exposure to extreme forces or heat (see paragraph 2.3 above); and
 - g) principal structural elements removed from a high-cycle aircraft for which conformity cannot be accomplished by complying with the mandatory requirements applicable to ageing aircraft.
- 4.2. Scrapping of parts and materials may not be appropriate in certain cases when there is an ongoing evaluation process to determine whether a part or material may be restored to an airworthy condition.

- 4.3. Examples of these cases include the extension of life limits, the re-establishment of in-service history records, or the approval of new repair methods and technologies. In these cases, such parts should be segregated from serviceable parts until the decision has been made as to whether these parts can be restored to an airworthy condition, or be scrapped.
- 4.4. Scrapped parts should always be segregated from serviceable parts and when eventually disposed of should be mutilated or clearly and permanently marked. This should be accomplished in such a manner that the parts become unusable for their original intended use and unable to be reworked or camouflaged to provide the appearance of being serviceable.
- 4.5. When scrapped parts are disposed of for legitimate non-flight uses, such as training and education aids, research and development, or for non-aviation applications, mutilation is often not appropriate. In such cases the parts should be permanently marked indicating that they are not serviceable; alternatively, the original part number or data plate information can be removed or a record kept of the disposition of the parts.

B. REQUIREMENT/ INFORMATION

1. Economic advantage shall not outweigh the requirements to maintain the airworthiness of the aircraft. Owners/operators are therefore encouraged to discuss with DCA when intending to put any aircraft on storage programs or to reactivate thereafter.
2. It is the responsibility of the end user to ensure that parts installed on an aircraft are serviceable and adequate certification exists to confirm the status of airworthiness before the part is released to service on Belizean registered aircraft. Manufacture or Approve Maintenance Organization (Certificate Maintenance Facility) who issue the certification on the parts, responsible for being satisfied that all reasonable measures have been taken to ensure only genuine approved and serviceable parts are accepted in accordance with these procedures.
3. The end user is responsible to ensure that aeronautical part installed onto an aircraft is an approved part. Approved part is one that meets approved design data applicable to that part, which has been manufactured and subsequently maintained in accordance with the requirements of the State of Design, Manufacture or Registry as applicable.